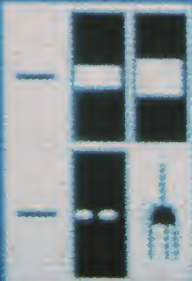




Dr. HALO™





Dr. HALO™ User's Guide

Version 1.23

**© 1984 Media Cybernetics/
Softwriters, Inc.**

Distributed by:

Lifeboat Associates
1651 Third Avenue
New York, New York 10128
(212) 860-0300

© Lifeboat Associates 1984

Program by:

Jan Gombert

Manual edited by:

Pava Wodiska
Michael Stone



Getting Started with Dr. HALO	1
A Brief Overview of Dr. HALO	4
A Brief Description of What Is on Your Screen	7
How To Use the Buttons on Your Pointing Device	8
Which buttons should I use?	8
In the icon area	8
In the pop-up menu area	9
In the drawing area	9
How To Use Your Keyboard as a Pointing Device	10
How To Use Your Joystick as a Pointing Device	11
How To Use Your Touch Pad as a Pointing Device	11
How To Use Your Mouse or Digitizer as a Pointing Device	12
What If Your Mouse Isn't Working?	12
How To Use the Drawing Mode Icons	13
Clearing the Screen	15
Exiting from the Program	16
Saving or Retrieving a Picture	17
Printing the Image	18
Creating Text	19
Cutting and Pasting, and Rubberstamping Images	22
Filling an Area	27
Painting with an Airbrush	28
Drawing	29
Erasing	29
Drawing Straight and Curved Lines	30
Rotate	32
Fat Bit Editing and Symbols	33
Draws Visible and Invisible Grids	36
Draws Hollow and Filled Circles and Ellipses	37
Hollow or Filled Rectangles	38

Current Drawing or Painting Mode and Color	39
Colors	39
Color Swapping	40
Hatch Patterns	42
Line Styles and Widths	43
How to Use the Show Program	45
Dr. Halo for the TI Professional Computer	47
Application Notes and Shortcuts	48
Updates	51
Glossary	52
Appendix	54
Optional Commands	57
Creating the Configuration File from DOS	58

Getting Started with Dr. HALO

Dr. HALO is a graphics drawing program that is very easy to use.

To use Dr. HALO you need the following:

- An IBM PC, PC/XT, or a very closely compatible microcomputer such as the Compaq; or the TI Professional Computer.
- A color/graphics adapter ('card'); you may already have an IBM Color/Graphics Adapter, or you can use one of the many other cards listed below. (These cards generally offer a greater variety of colors and higher resolution—a better picture—than the IBM product.)
- 256K of RAM memory.
- A pointing device such as a mouse or digitizer tablet. (You can make do without a pointing device, but you'll want to go and get one as soon as you can.)

To install Dr. HALO:

Insert your disk and type INSTALL. Dr. HALO will ask you questions about what kind of hardware you are using. After you answer each of these questions about your hardware, the next question will appear.

For example, the INSTALL program will display a list of possible choices for the type of color card you are using:

- | | |
|----------------------|----------------------|
| 1. IBM | 7. Conographics |
| 2. Scion | 8. Tecmar Color |
| 3. Orchid Technology | 9. Tecmar Monochrome |
| 4. Amdek | 10. Number 9 |
| 5. Hercules | 11. Quadcolor II |
| 6. Quadscreen | 12. TI Professional |

You would enter the number corresponding to the type of card installed in your system. Remember to hit your carriage-return or Enter key after entering the number.

NOTE: You don't have to use the INSTALL program. Refer to the back of this manual for command line options and information about creating a "configuration" file.

After you've selected a color graphics adapter to use, Dr. HALO will then ask you whether or not you are using a color monitor. Type Y or N followed by a carriage return.

Another question concerns the "mode" in which you'll start. Try mode 0 for right now.

(The IBM Color/Graphics Adapter offers two modes—mode number 0 provides a 320 x 200 display with 4 colors available at any given time; mode 1 will provide a 640 x 200 display but with only 2 colors. The number 640 x 400 refers to the number of dots of light—"pixels"—that appear on the screen; 640 dots from left to right and 200 from top to bottom. So this mode is said to offer a "resolution" of 640 x 400. The more pixels, the higher the resolution.)

(If you have one of the other color cards mentioned, you can use mode numbers greater than 1 to enable various combinations of colors and available resolutions. A complete list of mode settings is in the back of this manual.)

The next question refers to the type of pointing device you're going to be using. If you have no pointing device, enter the number 5; else refer to the list below.

- | | |
|------------------------|--------------|
| 1. Mouse Systems mouse | 5. Keyboard |
| 2. Summagraphics mouse | 6. Koala Pad |
| 3. Microsoft mouse | 7. Joystick |
| 4. Bit Pad One | |

Next up is the question, "Communications port?" This affects you only if you're using a device that plugs in to one of the serial ports on your PC and if you've got it plugged into COM2:. If you know you need to use COM2: enter a "2," otherwise enter a "1."

The last question concerns the printer, if any, you'll be using. Enter the number which corresponds to your printer, using the following list:

- | | |
|--------------|---------------------|
| 0. None | 4. Quadjet |
| 1. Epson | 5. Act II |
| 2. IDS Prism | 6. Polaroid Palette |
| 3. Diablo | |

Check your answers. Type "y" if OK, any other key to begin again. When you are back to the DOS operating system you type: A>DRHALO (assuming you are using disk drive A:).

1) If you have the Hercules card, you must enter a special command to be able to do graphics. The command line is: A>hgc full. This can either be entered when booting your system or before you type A>drhalo after the INSTALL program.

2) If you do not want to use the INSTALL program and want to indicate command line options or wish to create a configuration file see the APPENDIX.

Make sure that you've installed any necessary driver programs first; otherwise the program will abort and you will be returned to the DOS (A>) prompt. For example, if you're using the Microsoft mouse, you should run the program MOUSE.COM before you start Dr. HALO. If you're using a mouse that has a special drawing pad, make sure the mouse is sitting on the pad when you start. If you plan to use the Epson printer you'll want to run GRAPHICS.COM before starting.

A Brief Overview of Dr. HALO

Dr. HALO lets you draw and edit pictures on your computer screen. Easy to learn and easy to use, Dr. HALO offers numerous functions which allow you to create sophisticated, professional quality images.

Developed by Media Cybernetics, Inc. and Softwriters, Inc., Dr. HALO operates on the IBM PC, some IBM compatibles, and the Texas Instruments Professional computer. Dr. HALO can display images on a wide variety of graphics boards in high resolution monochrome and color.

Instead of having you memorize long lists of keystroke and function key commands like other software packages, Dr. HALO's "commands" take the form of descriptive pictures (icons). Each icon represents a different function. An icon's function is the "job" that it does. For instance, drawing is the function or job of the pencil icon. To pick the function that you want to perform, point to the icon which pictures that function and press a button on your pointing device.

These pointing devices include: mice, digitizers, joysticks, keyboard arrow keys and touch pads. Using any of these devices causes a cursor, which looks like a plus sign, to move across your screen. The cursor has two jobs. The first job is to act like a pointer to let you pick icons and point to where you want to put things (things like text, parts of images, etc.). The second job of the cursor is to act as a locator that tells where to draw, cut and paste or rubberstamp.

Filled and unfilled circles, ellipses and boxes, as well as pencil, paint can, airbrush and scissor icons let you draw, paint, move, cut and paste, and rubberstamp images. These functions, combined with grids, choices of colors, patterns, symbols, line widths, type faces, and airbrush densities provide all the tools you'll need to design sophisticated, professional quality images.

Dr. HALO also provides unlimited brush creation. Anything that you have drawn on the screen, including line styles, patterns, filled and unfilled shapes and even text can be used as a paintbrush. These paintbrushes give displays a unique "special effects" look. The patterns that you have designed can also be stored in the symbol library and used as hatch styles.

One of Dr. HALO's most powerful features is the manipulation of text. You can select the size, color, line width, and angle for these professional type faces. Dr. HALO has eight type faces in a variety of styles which include: Italic, Roman 1, Roman 2, Roman 3, Text, Cursive, Gothic and Greek (for math and scientific symbols). The characters in these type-faces can be filled, unfilled, or drawn with drop shadowing to give text greater flexibility and impact when you are creating word charts and labels.

Some of the more advanced functions of Dr. HALO are:

- curve fitting — the automatic drawing of a smooth curved line between plotted points;
- menu switching — the option to move the menu from right to left, top to bottom, or to remove it completely, so that the entire screen can be used;
- fat bit editing — the ability to "magnify" portions of an image and edit individual pixels.
- symbol creating — this allows you to create symbols to be used as hatch styles, logos etc. and to store them in a symbol library for future reference.

- rotating images—this permits any image within a square “rubberband box” to be rotated 90 degrees to the left. You can also flip any image upside down or backwards.
- overlaying images—this enables an image to be lifted off a black background and set down in a new location, leaving both the old and new backgrounds intact.
- snap grids—an invisible grid that can be drawn on the screen to make “lining up” of charts and graphs easier.

Dr. HALO is faster and more flexible than other picture editors and paint packages because it incorporates the HALO graphics subroutine library. Dr. HALO’s device independence gives you the freedom to specify the hardware you’re working on when you load the program into your microcomputer.

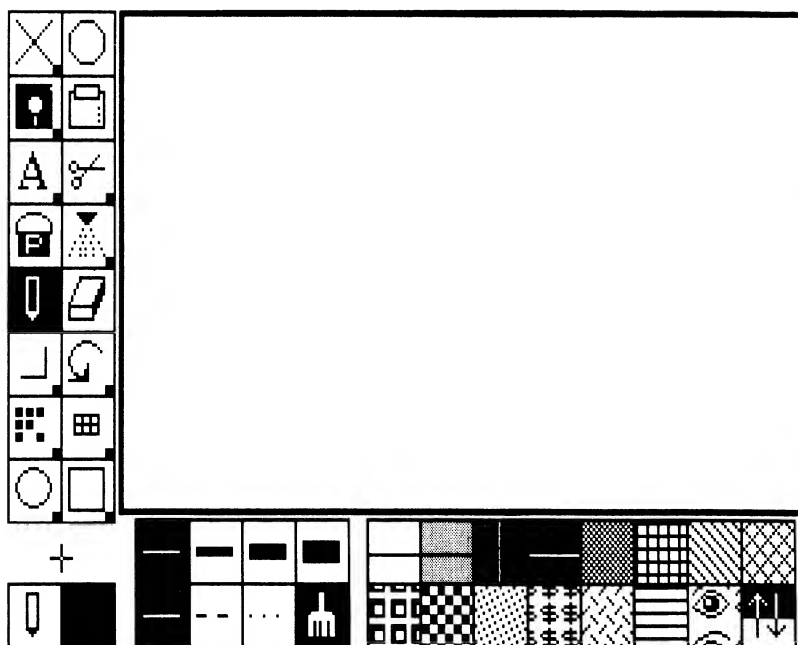
(HALO is a comprehensive toolbox of over 150 fast, powerful graphics functions compatible with a wide variety of languages, applications and hardware. It is the most widely used library of graphics functions under MS/DOS and is considered to be the standard for computer graphics in the microcomputer marketplace. If you’re a programmer, why not investigate HALO a little further? Contact your local computer dealer for info.)

The GRAB program is used to capture graphics from other applications, such as “LOTUS 1-2-3,” “Graftalk,” or CAD and business presentation packages, and enhance these graphics with Dr. HALO. These displays can then be made into a “slide show” presentation form using the SHOW program. Both GRAB and SHOW are included in the Dr. HALO package.

A Brief Description of What Is on Your Screen

There are five parts to the screen:

- table border="0">
- | | |
| --- | --- |
| center: | this is the drawing area |
- | | |
| --- | --- |
| left: | icons for picking a drawing mode |
- | | |
| --- | --- |
| bottom right: | icons for selecting a color or hatch pattern |
- | | |
| --- | --- |
| bottom left: | icons for setting a line style or width |
- | | |
| --- | --- |
| lower left corner: | this shows the current drawing mode and color |



How To Use the Buttons on Your Pointing Device

Which buttons should I use?

Dr. HALO supports a number of different pointing devices and operates by using two buttons. For pointing devices with more than two buttons, there will always be two buttons which will correspond to the left and right buttons described below. To find out which two buttons you should use, you can either experiment, check the manual for your particular pointing device, or if you are an expert you can use the "P" command line option found in the APPENDIX to indicate which buttons you would like to use.

In the icon area:

The left button selects the icon. Icons that have small squares in the lower right corner have extra options. If you want to choose from these extra options, press the right button instead. This causes the options to appear in a pop-up menu. For example, to make a selection from the pop-up menu of font styles, sizes and locations, move the cursor onto the font icon and press the right button. (If you are unfamiliar with the term "cursor," it is defined in the GLOSSARY.)

*NOTE:

- 1) If there is no pop-up menu, either button will select the icon.
- 2) For those icons with extra options, the icon pictured in the main icon menu is called the "default mode" of that icon and is repeated as the first selection in the pop-up menu.

The default mode of an icon can take one of two forms:

a) In the cases of the "Font and Airbrush" icons the default mode will be the combination of choices that you selected the last time that you used the pop-up menu. Often when using either of these two icons you'll want to repeat the same selections without having to return to the pop-up menus. For example, if you're painting with the airbrush and decide to change colors, you can do this without also having to reselect the size and density.

b) For all of the other icons with pop-up menus, the default mode will be the function associated with the icon pictured in the main menu.

*NOTE: For a more detailed explanation of "default mode" see the GLOSSARY.

In the pop-up menu area:

Press either button to select an option from the pop-up menu. If you wish to exit the menu without selecting anything, move the cursor out of the icons and press either button. You are now in the default mode of that icon.

In the drawing area:

Holding down the right button while moving the cursor allows you to adjust the shape and size of an object in many of the drawing modes. (This is called "rubberbanding.") Then, pressing the left button draws that object on the screen. For example, in circle mode, by pressing the right button and moving the mouse, you can change the radius of a circle. Pressing the left button draws that circle on the screen.

How To Use Your Keyboard as a Pointing Device

When you specify number 5 in the INSTALL program, the keyboard becomes your pointing device. Then, you can move the cursor around in eight directions by using the numeric keypad. The left shift key functions as the left button and "/" key functions as the right button .

When the keyboard is used as a pointer, normal keyboard functions are disabled. To switch between pointing and normal keyboard functions (to enter text, for example) press the ESC key.

Additional functions:

The longer you hold down the direction keys, the faster the cursor moves. If you hold down the ALT key and a direction key at the same time, the cursor "jumps" or tabs 16 pixels. "Tab positions" may be set on the screen as reference points. If you type Ctrl-Fn (e.g., Ctrl-F6), Dr. HALO "remembers" the current location of the cursor. If you press Fn subsequently, the cursor will return to that location.

*NOTE: Dr. HALO has a non-destructive cursor which will always be visible no matter what color you make the screen.

How To Use Your Joystick as a Pointing Device

The buttons on your joystick work just like the buttons described above. To make your cursor move just move the stick back and forth and up and down.

How To Use Your Touch Pad as a Pointing Device

The touch pad buttons work just the same as described above and your "pen" moves the cursor across the screen. When drawing objects be sure to press down hard with the pen and be careful not to lift it off of the pad before you are done.

How To Use Your Mouse or Digitizer as a Pointing Device

The mouse and digitizer are probably the easiest of all the pointing devices to use. The buttons work just as they have been described above. If you have more than two buttons on your device, it is best to just experiment to see which two you should use. To move the cursor just move your mouse or digitizer across the surface recommended by its manufacturer.

What If Your Mouse Isn't Working?

If your mouse isn't working, the program will either terminate immediately, or your mouse will just sit there, not letting you move the cursor to the stop sign to exit. If the latter happens, press the CTRL key and "x" to exit.

If you are using the Microsoft Mouse or compatible, be sure to load the mouse driver by executing MOUSE.COM prior to executing Dr. HALO. If you are using the Summa Mouse, the mouse must be sitting on its pad before you power up. In any case we suggest reading the directions supplied by the manufacturer before using your pointing device with Dr. HALO.

*NOTE: If you are an expert, you can use the "P" command line option in the appendix to: 1) Select which buttons on your pointing device will act as the left and right buttons for Dr. HALO. 2) Indicate the movement sensitivity of your pointer. These are complicated functions; we don't recommend them for the average user.

The following description of how to use the drawing mode icons is best understood when you sit down in front of your machine with Dr. HALO loaded up and ready to go. This way, as each icon is explained, you can experiment.

First, here's a list of the icons and their descriptions. Each icon is explained fully in the following pages.

How To Use the Drawing Mode Icons

The icons on the left side of the screen perform the following functions:

X: Clears the Screen and Moves the Icon Menus

Stop Sign: Exits the Program

Diskette: Saves and Restores Images and Symbols

Printer: Prints the Image

A: Creates Text

Scissors: Cut and Pastes, and Rubberstamps Images

Paint Can: Paints an Area

Spray Paint: Paints with an Airbrush

Pencil: Draws

Eraser: Erases

Line: Draws Straight Line Segments, Fills Polygons, and Offers Curve Fitting

Curved Arrow: Rotates Images

Fat Bit Editing: Does Fat Bit Editing and Permits Symbol Creation, Storage and Retrieval

















Grid: Draws Visible and Invisible Grids

Circle: Draws Hollow and Filled Circles and Ellipses

Square: Draws Hollow and Filled Rectangles

Drawing Mode Icons

These icons are described individually below:

Clears the Screen and Moves the Icon Menus			Exits the Program
Saves and Restores Images and Symbols			Prints the Image
Creates Text			Cuts and Pastes, Rubberstamps, Stores, and Retrieves Images
Paints an Area			Paints with an Airbrush
Draws			Erases
Draws Straight Line Segments, Fills Polygons, and Offers Curve Fitting			Rotates and Flips Images and Parts of Images
Does Fat Bit Editing and Permits Symbol Creation, Storage and Retrieval			Draws Visible and Invisible Grids
Draws Hollow and Filled Circles and Ellipses			Draws Hollow and Filled Rectangles

Remember, moving the cursor onto the an icon in the main menu and pressing the LEFT button on your pointing device gives you the default mode of that icon, pressing the RIGHT button displays the pop-up menus. To choose an icon in the pop-up menu, move the cursor onto the icon and press either button. Some of the pop-up menus will have more than one line of options for you to choose from.

If you don't want any of the options listed in the pop-up menu, move the cursor out of the icons and press either button. This returns you to the default mode of the icon that you had selected from the main menu.

*NOTE: The definition of "default mode" is found in the GLOSSARY.

Individual drawing mode icons are described below in the order of left to right, top to bottom.

Now for the fun part:

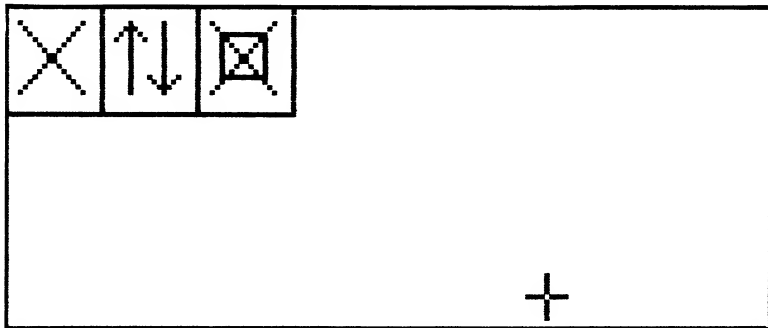


Clearing the Screen

Press the left button first, and you'll be asked if you really want to clear the screen. The left button (or "y") confirms, the right button cancels.

```
Clear Screen?  
left=YES   right=NO
```

Press the right button first, and you'll get a pop-up of three choices:

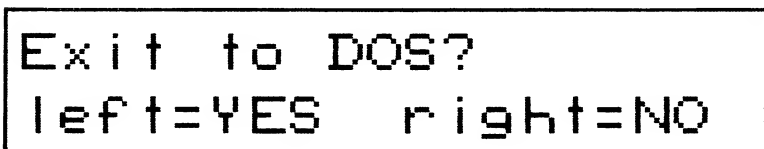


- (1) clear the screen, (X)
- (2) move the icons to the other side of the screen, (the arrows)
- (3) remove the icons from the screen altogether, (X over a box). If you have elected to remove the icons, you can get them back by moving the cursor to either the right or the left hand side of the screen and pressing the right button.



Exiting from the Program

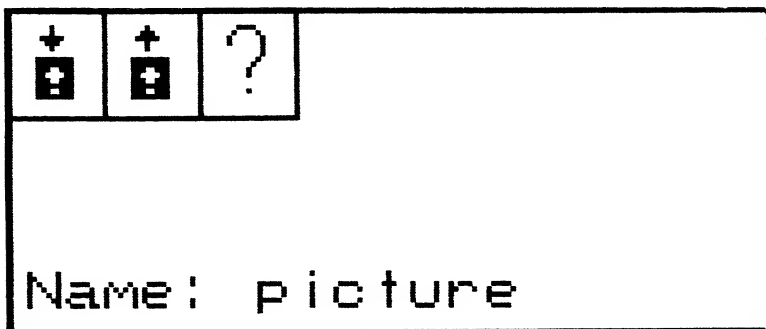
If you select this icon, you'll return to DOS. You will be asked if you want to exit to DOS, yes or no. Pressing the left button means yes, pressing the right button means no. (You can also exit to DOS by pressing CTRL "x.")





Saving or Retrieving a Picture

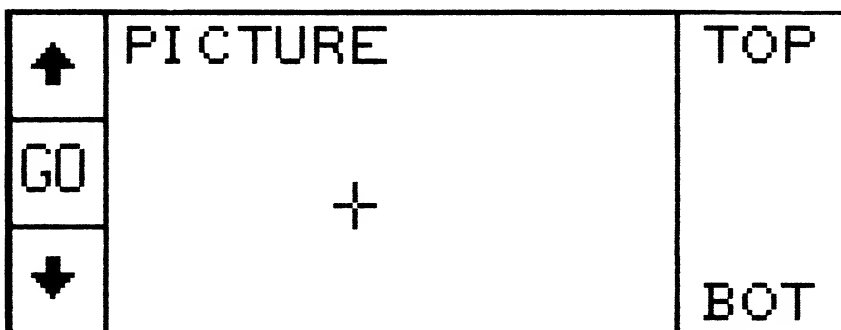
If you select this icon, you'll automatically get a two line pop-up menu. The first line contains three icons. The second line contains the statement: "name: PICTURE" (or, if you have already used this icon, the name of the last file you used will replace the word PICTURE).



The first icon is a picture of a floppy disk with an arrow above it pointing down. This icon allows you to store the entire picture that you have on the screen to disk in compressed format. Use the backspace key cursor to erase the word "picture" and type in your own file name. Then select this icon by pressing either button.

The second icon is similar to the first except that the arrow points up. This icon allows you to retrieve a picture that you have stored. Erase the word "picture" (using the backspace key) and type in the name of the file that you would like to retrieve. Then select this icon with either button.

The third icon is a question mark. Selecting this icon brings up a directory which lists all of the picture files that you've stored. (Normally, this lists the only the disk drive that you're currently using. If you've stored something in another drive, just type the letter of that drive and a colon before the file name. For example, B:PICTURE).



If you have chosen the question mark icon, three new icons will appear at the left side of the pop-up menu area. The directory listings will appear at the right side. Selecting either of these arrows allows you to look through the directory. When you see the name of the file that you wish to use, put the cursor on top of it and press the left button; the correct picture name will be highlighted. Now select the "GO" icon by moving the cursor onto it and pressing either button. This new file name will replace the word picture on the third line and you can bring it up on the screen by selecting the second icon from the diskette pop-up menu.

These same icons are used again in the scissors and the fat-bit icons and will function in the same manner.

Images that you have stored in this icon will automatically be given the suffix, ".PIC". When calling up an image from the SHOW program, you will have to add this suffix. If you call up an image from within this icon, Dr. HALO will assume the file has an extension of ".PIC".



Printing the Image

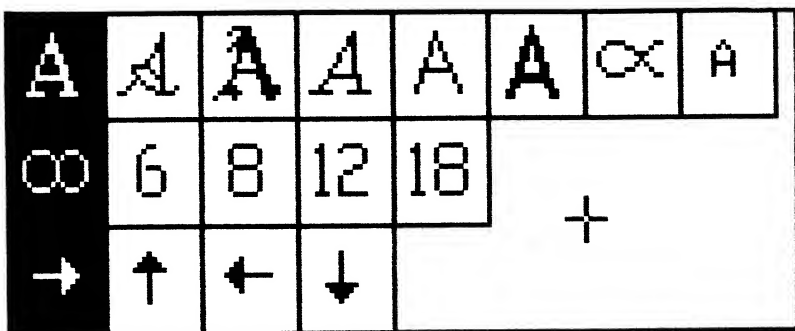
Select this icon to print the image from your screen to any HALO compatible device. The icons won't print.

*NOTE: The printer output uses the BIOS routines instead of DOS. It's about twice as fast as the DOS 2.0 GRAPHICS print utility.



Creating Text

Press the left button to get the default mode, which will be the last font you used in the same style, size and orientation. Press the right button to view a pop-up menu containing the eight available font styles, font sizes and directional orientation for the text.



In this pop-up menu you must choose an option from every line. (Pretend you're in a Chinese restaurant: one from column A, one from column B, and one from column C.)

From the first line pick a font style with either button.

Choose the size of your text from the second line. If you picked the last font style option from line one, the size cannot be varied. This font style was created specifically to write small. For all of the other font styles, you can vary the size using this line. The first icon in this line (the mathematical symbol for infinity) lets you adjust the size of your text with your pointing device. This is useful if you want to fit your text to a certain area of your display or if you are adding only one line of text.

You can choose the orientation of text from the options listed on the third line. The text will read in the direction of the arrow that you have chosen.

Now that you have chosen an option from every line, the cursor will look like a box instead of a plus sign. The size of this box will be equal to the size of your text. If you have chosen the infinity option from line two, you can change the size of this rubberband box and thus, the size of your text. To make your text larger or smaller, hold down the right button and move your pointing device. This temporarily anchors the lower left hand corner of the box so that moving the pointing device forces the upper right hand corner to expand or contract.

You are now ready to enter your text. If you are using a mouse, joystick, digitizer or similar device, just type; you can use the backspace key if you make a mistake. If you are using the keyboard as your pointing device, pressing the ESC key switches between the pointing mode and the text mode. (This means that to enter text you must first press ESC and then press ESC again to return to the pointing mode when you are done.) The boxed cursor will get longer as you fill it with text. The bottom of this box is on a line with the base of the letters. For letters with descenders, for example the letter "g," the descender will extend below the box.

To place your text on the screen, move the boxed cursor to where you want the text to be and press the left button. (If you are using the keyboard as your pointing device, press enter, then to get back to pointing mode, press ESC.)

Remember, in this icon the default mode will be the last combination of font style, size and orientation of text that you had selected.

Here is a quick step by step example:

- 1) Select the pop-up menu of the fonts by pressing the left button.

- 2) Choose the font style with either button.
- 3) Pick the size of your font. Try the infinity option.
- 4) Pick the orientation of the text. Use left to right for now.
- 5) Type in the text. Let's type, "Dr. HALO." The letters you enter will appear in the upper left hand corner of your screen.
- 6) Since we've chosen the infinity option, we must adjust the size of the boxed cursor. Hold down the right button and move the cursor back and forth until you like the size of the box.
- 7) Now move the box to the desired position and push the left button to display the text.

Wasn't that easy?

*NOTE: You can't use the fonts provided with Dr. HALO outside of the Dr. HALO environment.

Here's an example of the fonts and their names:

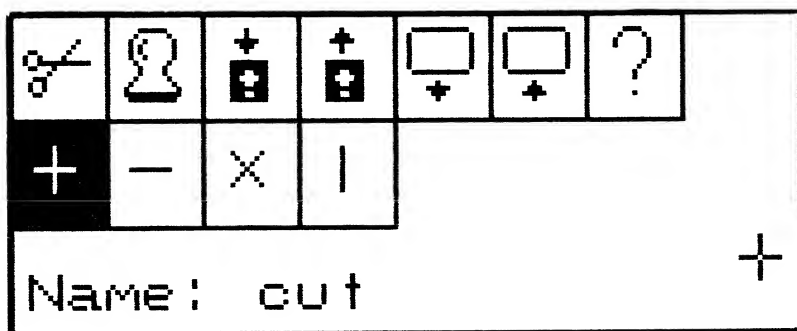




Cutting and Pasting, and Rubberstamping Images

This icon has a three line pop-up menu with several combinations of options.

The two main functions for this icon are depicted by a pair of scissors and a rubberstamp. Next to these two icons are three others to allow storage, retrieval and directory functions. The second line contains four other icons: positive (+); negative(-); exclusive/or (x); and overlay or matte (1) which are used to modify the options on the top line. In this pop-up menu you must first choose the options you wish to use from the second and third lines and then select an option from the top line because as soon as you select an option from the top line you immediately enter that mode.



We'll first explain how to use both of the main icons, then we'll show you how to combine them with those listed on the second row for additional effects. Finally, we'll cover storage, retrieval and naming parts of your displays using the diskette and question mark icons.

Scissors, the default mode, allows you to lift a section of your image off of your display and to move it to another area of your image exactly as if you "cut" out a portion of that picture and "pasted" it over something else. When you select this icon a rubberband box cursor appears which you fit over the portion of

your image to be moved by adjusting its size with the right button. Press the left button to lift it off of the display. (At this point if you decide that this is not the area that you want to move you can “undo” by either moving the cursor off of the screen or by pressing the right button.) Press the left button again to set it down in the new location. Once the area has been moved you are ready to begin again.

The rubberstamp icon allows you to copy the image and to “rubberstamp” it onto other areas of your display. Instead of cutting out a section of your display with the scissors, which leaves a blank spot, rubberstamp maintains your original image intact. Select the area to be rubberstamped as you would with any rubberband box cursor function (e.g. text) and then stamp the image as many times as you like by pressing the left button. To start rubberstamping a new area, move the cursor off of the screen or press the right button. This saves you from having to return to the icon menu.

*Note: Rubberstamp respects the “painting mode.” If the paintbrush is on you can paint continuously with the image contained within the boxed cursor. (Painting mode is described in the GLOSSARY.)

The + indicates a positive reproduction of an image, like a photograph. The — indicates a negative reproduction of an image, like a photographic negative. Selecting either of these icons in conjunction with scissors or rubberstamp lets you alter the image to either a positive or negative one. For example, if you have black text on a white screen you can reverse the rubberstamped image by selecting both the rubberstamp and the negative sign icons. You will then have white text on a black screen within your boxed cursor. (This works for colors also.) If you want your image to remain as you originally drew it you must indicate this by selecting the positive icon.

The x indicates the exclusive OR function. Selecting this allows any image that you draw to remain visible even if you paint the same color on top of itself. (This is why the cursor is always visible.) For example, if you were to rubberstamp a red circle into a red square, the exclusive/or function mathematically combines these two reds forming black color in the overlapping section so that the entire circle remains visible.

The | is the overlay or matte function. This option allows you to lift a design off of the plain black background of the screen and transfer it to a new location without disturbing the background of that new location. This function is best understood by example rather than by explanation; so here's an example:

Let's say that you've drawn a red heart on the black background of the screen (this doesn't work if you have colored the screen at all) and you have also drawn a boy. What you'd like to do is to put the heart on his T-shirt. (fig. 1)

If you try to do this with the scissors and the + options you'll end up with a black rectangle with the heart inside of it on his T-shirt. (fig. 2)

If, however, you use the scissors and the | option you can transfer only the heart onto his T-shirt and not the rectangle surrounding the heart. (fig. 3) You can also use this function to create your own airbrush. This will be explained in greater detail in the description of the airbrush icon.

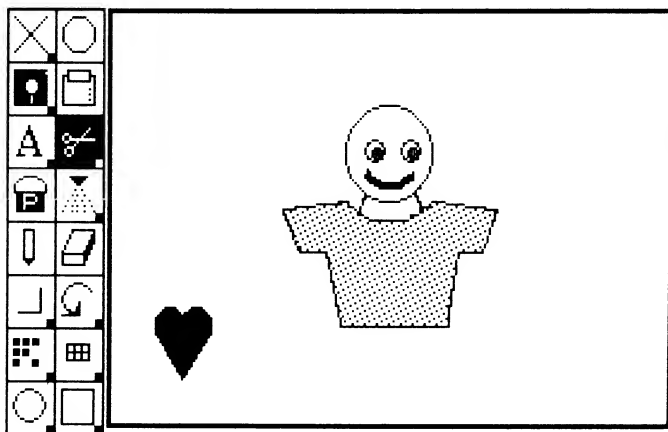


Figure 1

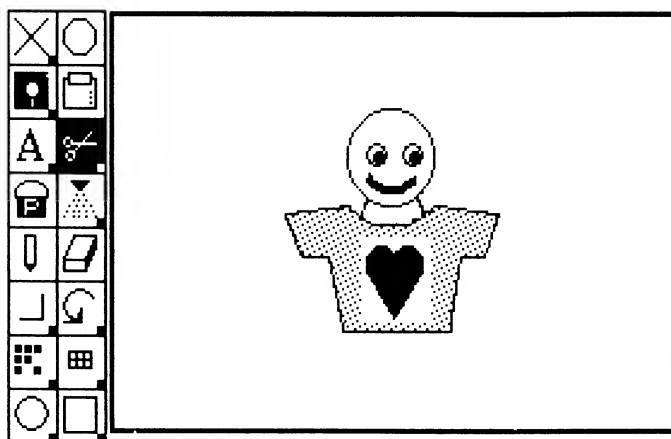


Figure 2 This is the result of using the scissors and positive (+) options:

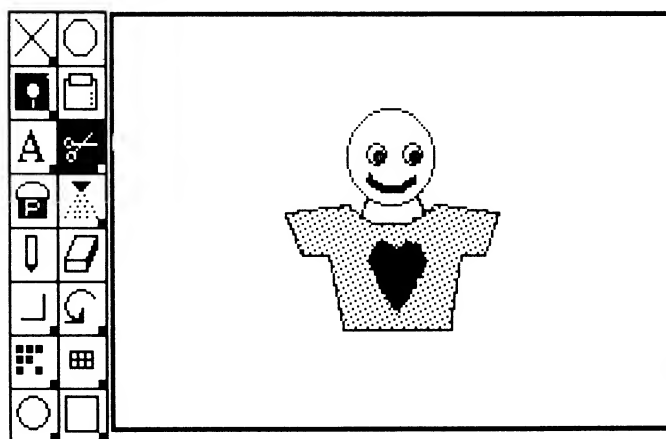


Figure 3 This is the result of using the scissors and the matte (|) options:

If you wish to store or retrieve just *part* of your image from disk, you can do this by capturing that part of your image with the rubberband box cursor and using the scissors and question mark icons and the naming line. This is done in the same manner as when you are using the diskette icon. To store part of an image to disk:

- 1) Select the pop-up menu for the scissors icon.
- 2) Name your image on the bottom line using the backwards arrow cursor and the keyboard.
- 3) Select the diskette icon with the arrow pointing down into it. This takes you out of the pop-up menu and gives you a rubberband box cursor.
- 4) Capture the section of the image that you'd like to store using the rubberband box cursor.

You can also store and retrieve the whole screen to and from disk using the fifth and sixth icons in this pop-up menu, respectively. (This is useful if you have a graphics board which supports multiple modes and you want to do "windowing." This is explained fully in APPLICATION NOTES.)

You can retrieve an image that you have stored by two methods. If you are sure of the name of the image it is easiest to retrieve it by typing in its name on the bottom line and selecting the third or fifth icon from the pop-up menu. Or if you are unsure of the image's name, you can retrieve the image by selecting the question mark icon, pointing to the name of the image, pointing to the "GO" icon, and again selecting the third or fifth icon from the pop-up menu.

When you are storing or retrieving an image, you can choose any of the drawing mode functions from the second line of options and subsequently store or retrieve your image in these various modes.

Images stored in this icon will automatically be given the suffix, ".CUT". When calling up files for the SHOW program, you will need to add this suffix. If you call up the file from within this icon, Dr. HALO will assume the file has the ".CUT" extension.

*NOTE: The purpose of providing storage, retrieval and library capabilities in this icon is to permit the creation of a clip-art library when a) you don't need to be as precise as fat-bits requires, b) you wish to store images larger than 64x64 pixels, c) you want to be able to store airbrushes that you have created.



Filling an Area

This mode allows you to paint a region with a solid color, hatchstyle, text or any pattern that you have created on the screen or have selected from the symbol library.

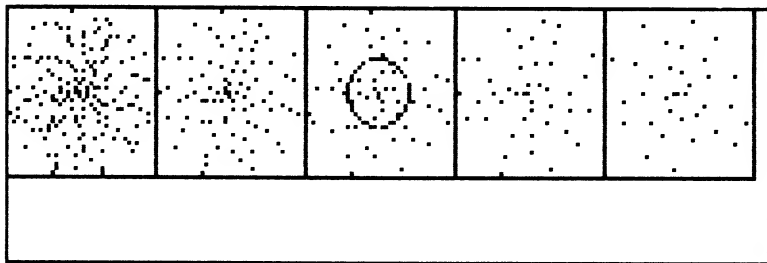
Make sure, if you're "filling" an enclosed area, that the space you are filling is completely enclosed. Otherwise, you might "fill" the whole screen by accident.

*NOTE: Take care in painting pattern over pattern. The complexity of this will cause Dr. HALO to react in one of two ways: either by refusing to fill in the whole pattern, or by taking a very long time to do so.



Painting with an Airbrush

When you select this option, a pop-up menu will appear, which gives you a choice of five airbrush densities and a cursor in the shape of a circle. After selecting any of these options you can adjust the radius of your circled cursor (and consequently the size of your airbrush) by holding down the right button and moving your cursor while you are still inside the pop-up menu. Once you have left the pop-up menu area you cannot change the size or density of your airbrush without returning to the icons. You can, however, change the color by selecting a new color icon with the left button.



The airbrush offers two of the drawing modes described in the scissors icon, matte and exclusive OR.

If you hold down the left button to paint with the airbrush, you'll be drawing in the matte or overlay mode. This means that as you continue to paint over an area the "dots" will get closer and closer together and will appear as a more solid color. This is because when you're painting in the matte mode you are painting with only the "dots" and not with the black background between the "dots."

If you hold down the right button to paint with the airbrush you will be drawing in the exclusive/or mode. As you continue to paint over an area, the "dots" will cross over each other. As this happens the colors will combine to form black and the area will appear to become less densely filled with "dots." If you change colors while painting in this mode the two

different colors will combine to form a third color instead of cancelling each other out. You can't airbrush in black.

The airbrush icon respects the currently selected painting mode. If the paintbrush is on, you can paint with the airbrush continuously. If the paintbrush is off, you can only draw one "spray" at a time.

Remember that the default mode for this icon is the last combination of size and airbrush density used.

***NOTE:** The airbrush is really just another rubber-stamping function of Dr. HALO. If you'd like to create your own airbrush you can do this by using the cut and paste icon. First, select the paintbrush icon from the line style and width icons on the bottom right side of your screen. Then, draw the image that you would like to use as an airbrush on the plain black screen. Then, select the rubberstamp and the matte options from the scissors icon pop-up menu. Now, capture your image in the rubberband box cursor. Then, hold down the left button and you can paint with your new airbrush.



Drawing

This mode allows you to draw freehand. The pencil respects the currently selected line width, style, and color.



Erasing

This allows you to erase portions of your image. The size of the eraser is variable and is sized with the right button and moved with the left button in the same way as other rubberband box cursors.

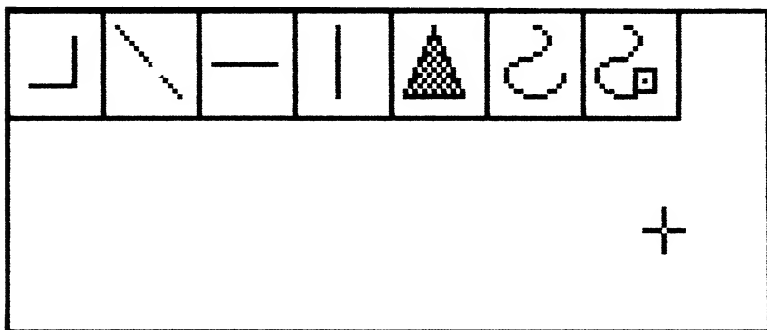


Drawing Straight and Curved Lines

Pressing the left button in this icon gives you a line (the default line) allowing you to create stick figures as follows: Press the left button once to define one endpoint of the line. As you move the cursor, the other endpoint either extends or contracts. When you've settled on the second endpoint, press the left button. To erase a partially defined line, press the right button.

Like other drawing modes, if the paintbrush is "on," you can paint with lines.

If you press the right button while in the line icon, you'll get a pop-up menu with seven choices:



The first is the default line which we've already discussed.

The second choice provides you with a line whose length and angle can be altered. Make these alterations by holding down the right button and moving the cursor. Draw the line on your screen by pressing the left button.

The third and fourth choices provide horizontal and vertical lines respectively.

The fifth and sixth options provide polygon functions: an intelligent fill of a polygon (choice five) and curve fitting for a polygon (choice six).

The action of the buttons is similar in either of these options. First draw the polygon by using the left button (you can hold it down continuously for polygon fill if the paintbrush is "on").

When the right button is pushed:

1) for polygon fill, the drawn polygon is filled. You will probably want to close the polygon by making the last point equal to the first point, but there are no other restrictions. The polygon can cross itself and other pieces of the drawing.

2) for polygon curve-fitting, the initial polygon is erased and a smooth curve is drawn in its place.

If you change your mind and want to "undo" or erase a partially completed polygon, move the cursor into the icon area and the polygon or curve will disappear. You can erase it in this way until you have pressed the right button. Once you have pressed the right button you must use the eraser to erase it.

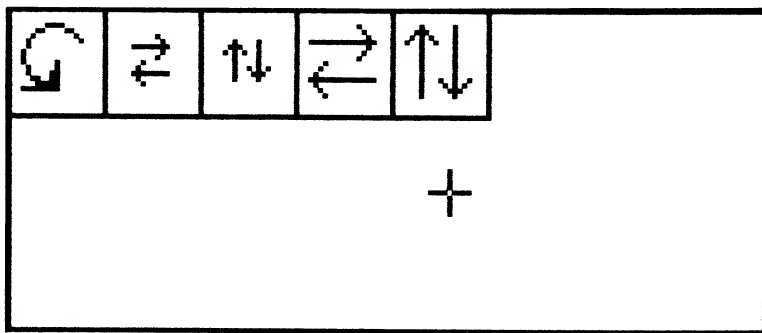
The seventh option is rubberband curve fitting which lets you "drag" a curve by one of its points. This is a two step process.

First, draw your curved line like you do for curve fitting (above). Then, you can change the curve by changing the location of any of the original points of the curve. Notice that a square is drawn around the first point of your line. Click the left button to advance along the points of your line. When the little square is around the point that you want to change you can move that point to wherever you place the cursor by pressing the right button. Fix the curve on the screen by advancing along the points of the curve until the little box disappears. Now, press the right button.



Rotate

This icon has a pop-up menu with five choices. The default mode, the curved arrow, allows you to rotate any image within a square area, to the left, by 90 degree increments. The area to be rotated is captured and sized with the rubberband box cursor. Pressing the left button activates this rotation.



*NOTE: The image to be rotated can only be enclosed within a square (though it might not look square, depending on the aspect ratio of the board/mode you are using).

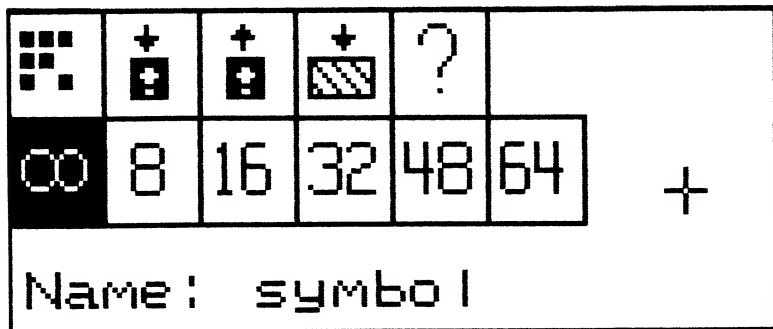
The second and third icons, the small horizontal and vertical arrows, allow you to flip the image contained in the rubberband box cursor either upside down or backwards to provide mirror images. The horizontal arrows flip the image so that it reads from right to left. The vertical arrows flip the image upside down.

The fourth and fifth icons, the large horizontal and vertical arrows, allow you to flip the *entire* screen either upside down or backwards to provide mirror images. The horizontal arrows flip the screen so that it reads from right to left. The vertical arrows flip the screen upside down.



Fat Bit Editing and Symbols

This icon has a three line pop-up menu.



The first line has the following icons: a pixel image; a diskette with an arrow pointing into it; a diskette with an arrow pointing out of it; a rectangle filled with a hatch pattern that has an arrow pointing into it; and the last icon in this line is a question mark (?).

The second line contains the list of size options.

The third line says, "Name: symbol" and lets you name your symbols to be stored, retrieved and edited. This is done in the same way that you name pictures using the diskette icon.

The pixel image, (the default mode) allows you to edit your image pixel by pixel. To do this: first choose the size of the area to be edited from the second line and, if you're planning to store the image, you can name it on the third line, then select the fat bits icon from the top line. As soon as you select the fat bits icon you will leave the pop-up menu and your cursor will have become a box. Now you need to enclose the section of the screen that you would like to edit within the boxed cursor and press the left button. Dr. HALO will

now display two views of this area on the left side of the screen: a magnified picture showing the individual pixels; and a true size picture so that you can see the results of your pixel editing while you are working. To fill a pixel with the currently selected color, press the left button. To erase a pixel press the right button. You can change the color that you are using by moving the cursor into the color icons and pressing the left button. When you are done editing move the cursor into the top left corner of the screen (the true size picture area) and press either button.

This pixel image icon also allows you to edit images on your screen for use as hatch patterns and symbols.

The second and third icons, the diskettes with the arrows pointing either up or down, allow you to store and retrieve your symbols to and from disk.

To store a symbol:

- 1) Choose a size from the second line.
- 2) Name your image on the third line using the backwards arrow cursor and the keyboard just as you would when naming pictures in the diskette icon.
- 3) Choose the diskette icon with the arrow pointing into it.
- 4) Capture the symbol you wish to store within the boxed cursor. You do this the same way as you store a picture in the diskette icon.
- 5) You can't store, or put in the hatch style icon, a symbol that is larger than 64x64 pixels using this mode (Perhaps less, depending on the memory in your system and the graphics card you are using). If your symbol is larger than this, Dr. HALO won't let you capture it with the rubberbanding cursor. If this happens you CAN store your symbol with the diskette icons (found under the scissors icon).

To retrieve a symbol that you've stored, just type in its name and select the diskette icon that has the arrow pointing away from it.

The fourth icon lets you put a symbol, stored on disk, into the hatch style box in lower right hand corner of the icon menu. You can do this by following the four steps outlined above with the exception of selecting this icon instead of the diskette icon. This allows this symbol to be used in exactly the same way as Dr. HALO's other hatch styles.

Images stored in this icon will automatically be given the suffix, ".SYM". When calling these images up from the SHOW program you will have to add this suffix. If you call the image up from within this icon, Dr. HALO will assume an extension of ".SYM".

The fifth icon, the question mark (?), lists the symbol directory just like the picture directory is listed for the diskette icon.

↑	SYMBOL	FROG	TOP
	45	123	
	XX	2411	
GO	PAT1	GATE2	
	UPARR	DNARR	
↓	SMARR		
			BOT



Draws Visible and Invisible Grids

This icon has a three line pop-up menu. You must choose an option from every line.

			+				
1	2	4	5	10	12	20	X
1	2	4	5	10	12	20	Y

The first line contains three icons which allow you to create:

- 1) A variably sized, visible grid. When selected, this grid will appear within the rubberband box which allows you to adjust the size of the area covered with the grid.
- 2) A visible grid which will cover the entire display.
- 3) An invisible grid which will cover the entire display. When this icon is selected the cursor will move in "jumps" from line to line of the grid.* This makes it easier to "line things up" when working on charts and graphs, etc.

The second line contains numbers which reflect the number of grid lines to be drawn on the x axis. (The x axis runs horizontally.)

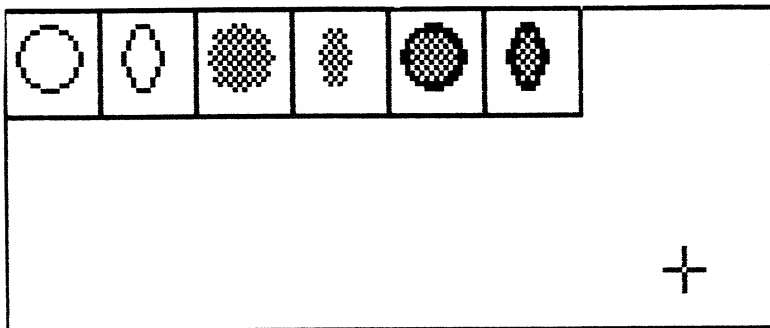
The third line contains numbers which reflect the number of grid lines to be drawn on the y axis. (The y axis runs vertically.)

*NOTE: If you create an invisible grid, the only way to go back to continuous motion is to go back to the pop-up menu and select the invisible grid icon and the 1 by 1 options from the second and third lines.



Draws Hollow and Filled Circles and Ellipses

This icon has a pop-up menu with six descriptive icons.



They are:

- 1) Hollow Circle
- 2) Hollow Ellipse
- 3) Filled Circle
- 4) Filled Ellipse
- 5) Filled Circle with a Border
- 6) Filled Ellipse with a Border

These can be sized by holding down the right button and moving the rubberbanding cursor. If you select the ellipse, you can change both the radius and the aspect ratio of the ellipse. In circle mode, you may change only the radius. They are drawn in the currently selected line and drawing mode. If the paintbrush is on, you can paint with them by holding down the left button. If the paintbrush is off, you may draw only one at a time.

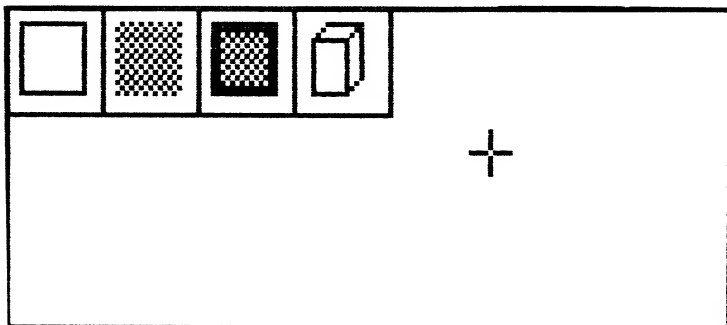
The filled circle and ellipse fill automatically with the currently selected hatch style and colors.

The filled circle and ellipses with borders fill automatically with the currently selected hatch style and their borders reflect the currently selected line style and width.



Hollow or Filled Rectangles

This feature has a pop-up menu with three choices, hollow rectangles, filled rectangles and filled rectangles with borders. They work in exactly the same way as the circle and ellipse icons do.

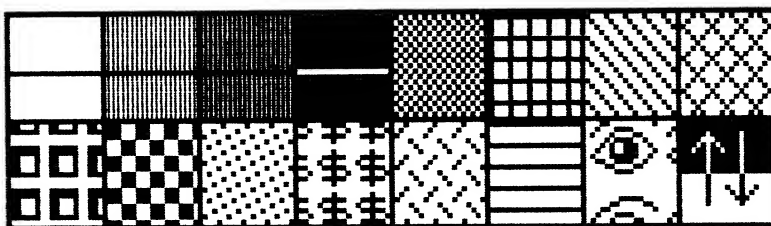


Current Drawing or Painting Mode and Color

The icons in the lower right hand corner of the screen show which color and/or hatch style and which drawing mode is currently selected.



Colors and Hatch Patterns:



Colors

You'll notice that the icons for colors are divided in half. This is used to change hatch style color combinations; we'll explain that later. First, let's discuss how to select a drawing and painting color.

To select a drawing and painting color, move the cursor onto the appropriate color icon (it doesn't matter whether it's on the top or bottom half) and press the left button. The currently selected color is always displayed in the lower left hand corner of the screen.

Color Swapping

The up and down arrows icon in the extreme lower right corner of the screen has several color changing functions. These functions include changing palettes, interchanging colors, changing colors, and changing the screen color. This icon works differently depending on the number of colors available on your graphics card. While the following description usually holds true, please check the table below for your particular graphics card.

Pressing the left button while the cursor is in the top half of this icon changes the palette (if your graphics card supports multiple palettes). The palettes that your card supports will be "flipped through" one at a time with each press of the left button.

Pressing the left button while the cursor is in the bottom half of this icon can be used with the IBM color card to flip through the available background colors for your screen, again one at a time.

Pressing the right button in either the top or bottom half of this icon gives you a three-icon pop-up menu which provides color swapping and color reversal for your images.

The first icon allows you to switch one color for another. This is a two-step process. First you must indicate which colors you wish to change. The colors you are changing will be displayed in the up and down arrows icon in the main menu and the top color will be switched to the bottom color. To put the correct colors into this icon, move the cursor into the top half of a color icon and press the right button to indicate the color you want to change. Move the cursor into the bottom half of a color icon and press the right button to indicate the color you want to change to. So if you want to change everything that you have colored blue

in your display to yellow, put blue in the top half of this icon and yellow in the bottom half. Then move the cursor onto the up and down arrows icon and press the right button to bring up the pop-up menu and select the first icon in this menu.

The second icon in this pop-up menu allows you to interchange colors in your display. To interchange colors you must first put the colors you wish to interchange into the up and down arrows icon as you do in the explanation above. Then select the second icon from the pop-up menu. So if you have put red and green into the main icon then anything that you have colored green in your display will become red and vice-versa.

The third icon in this pop-up menu allows you to produce a negative of your display. Just choose this icon from the pop-up menu.

Functions of the Up & Down Arrows Icon

Left Button Colors Available

	2	4	16	256
Top Half	Chg. Fgnd. Color	Chg. Pal- ette	Alt. 8 Cols.	Reset —1st 8 Cs.
Bottom Half	Swit. Hatch Color	Chg. Bkgd. Color	Alt. 8 Cols.	Next 8 Cols.



Hatch Patterns

When selecting a hatch pattern you may change both the foreground and background colors. The top half of the solid color icons indicate the foreground color and the bottom half indicate the background color.

First, choose a foreground color by moving the cursor to the top half of a color icon and pressing the right button. Next, to select the background color for your hatch pattern, move the cursor to the bottom half of a color icon and again press the right button. Then, select a hatch pattern with the left button.

To fill your image with a hatch pattern or color choose the paint can icon with the left button then move the cursor into the area you wish to fill and press either button. (If you are using either the solid box or solid circle icons, they will automatically fill with the currently selected hatch pattern as you draw them.)

Remember, press the left button to choose both the color and hatch pattern icons, and press the right button to change foreground and background colors of the hatch pattern.

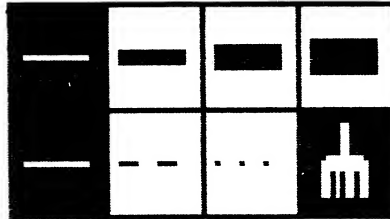
Dr. HALO also allows you to create your own hatch pattern using either a symbol of your own creation or one from the symbol library. The method for doing this is explained fully under the Fat Bit Editing icon description.

***NOTE:** If you make a mistake and make the foreground and background colors of your hatch pattern the same, you will end up with a solid color. Don't panic, just reselect the foreground and background colors and refill your image.

Line Styles and Widths

You select line style and width in the same way you pick a color.

The last icon in the attribute cells, the paintbrush, determines the painting mode. That is, whether drawing actions will be discrete or continuous. For example, if you have selected circle mode, and the brush is "on," you can paint with circles by holding down the left button. If the brush is "off," you can't draw more than one circle each time the left button is pressed. Dr. HALO will highlight the line style, width and paintbrush icons when they are "on."



Using the "Grab" and "Show" Files

Dr. HALO's Image Grabber currently works only with IBM-PC compatible graphics modes. You can use the GRAB program to store graphic images from other programs and access those images for use with Dr. HALO.

GRAB sits in RAM memory while you're executing another program.

You have to run the GRAB program once; after that, when you want to grab an image, hit ALT-PrtSc. The graphic image will be stored under the name HALOxxxx.PIC on the current drive and directory. Note that GRAB won't work with IBM text modes; you have to have a graphic image such as a picture or chart in order to use GRAB.

To activate GRAB, type:

GRAB X,yyyy

where X = I	IBM	yyyy = starting file #
H	Hercules	e.g. 0001=HALO0001.PIC
L	Lotus for Hercules	

Show — The Slide Show Program

SHOW is used to sequence images for presentations. The main menu is fairly self-explanatory; when you're formatting a slide show the following commands apply:

k = No time limit, press space bar to advance to next slide

ESC = Switch back to main menu

Ins = Insert a slide

Del = Delete a slide

How to Use the Show Program

SHOW is used to sequence your Dr. HALO images in a format which can be used for presentations or as a time-saving batch file for hard copy output. (This works differently for the TI, so please check Section 9.)

To run the SHOW program just type: SHOW

SHOW is divided into one main menu and ten data pages.

The MAIN MENU

The first option you should select from the main menu is the Configuration file. "G" will ask you what graphics card you are using. "H" will ask you what hard copy device you are using. After answering these questions, return to the main menu to select options which allow you to input, edit, run, print and output a file containing a list of Dr. HALO images in a slide show type format. The main menu is fairly self-explanatory; just choose an option and you will end up on the data pages.

The DATA PAGES

There are ten pages of data to allow you to format a slide show (or batch file for hard copy output) of up to 200 slides. The slide names are entered in the order that they will be presented during the show. When entering the slide names be sure to precede them with the letter of the disk drive on which the images are stored. For example: a: HALO0001.PIC. If you have chosen the print option from the main menu, you will only have to list the slide names on these data sheets.

If you have chosen the input, edit, run or output options you will have to enter a time interval in the second data column. This interval will be either a "k" or a "t". The "k" means the slide will be displayed until the space bar is pressed. The "t" means the slide will be displayed for the time, in seconds, entered in the third column. The maximum time allowed in this third column is 300 seconds. If you accidentally enter "k" and a time interval, the "k" will take precedence. You can also enter an "x" which asks Dr. HALO to ignore a slide, if you don't want to view or print it, but don't want to remove it from the format. You can flip between these ten data pages by using the PgUP and PgDn keys on your keyboard.

When you are formatting a slide show the following keystroke commands apply:

ESC = Switch back to main menu

Ins = Insert an image

Del = Delete an image

NOTE: The SHOW program tends to run smoother and faster if you call your images up from a hard disk or RAM disk.

Dr. HALO for the Texas Instruments Professional Computer

There are exceptions to Dr. HALO for the TI that are not covered in the documentation. These exceptions are explained below:

- 1) Not all pointing devices are supported. In particular, the joystick and the keyboard are not.
- 2) If you are using the Microsoft mouse, be sure that it plugs directly into the communication port.
- 3) The matte function (in 'cut and paste' and 'air-brush') is done using the logical OR function. This is similar to matte but not the same. For example, if you airbrush a region three times with red, green, and blue, you will get white. If you place text on a colored background, the colors will combine to form another color.
- 4) Normally you can use the ALT key as the second button for single button digitizers. This is accomplished using the P command line options outlined in the APPENDIX. This is accomplished using two keys on the TI for the following reason:

The ALT key status is not updated by the BIOS until a real key is read. Thus when you press the ALT key down, you must press another key (say, the ESC) also for the ALT to be recognized. The ALT key will then stay "on" until you press another key with the ALT off. In this way the ALT works like an on/off toggle.

Application Notes and Shortcuts

The following is a collection of shortcuts and suggestions for using Dr. HALO.

"Framing" the Screen

To put a border around the whole screen, first select a line style and color and then bring up the pop-up menu for grids. Just choose the 1x1 options from the second and third lines and the second icon from the top line. Dr. HALO will draw a border around the whole screen in the line color and style that you have selected. This is much easier than trying to do this with the "rectangle" icon.

"Painting" an Image

Here are a few suggestions that we found useful when painting free-hand drawings:

- 1) Save your image to disk before coloring it so that you will always have a clean copy.
- 2) Use the fat bits icon to check for "holes" in your drawing so that "paint" won't "leak out" when you fill it with color.
- 3) When painting with: a) a hatch pattern, or b) the same color you used to draw your picture with, it is a good idea to do a test run with a solid color (different from your drawing color) to check for holes. Then if you have a hole you can just refill the image with your screen color, plug the hole, and start again. Otherwise you might end up with a whole screen filled with an unerasable hatch pattern or a solid color that you can't change without losing your drawing.

Bar Charts

Creating bar charts with Dr. HALO is easy. Here are a few hints to make it easier:

- 1) Draw an invisible grid on your screen with the grid icon. If you are going to be adding lots of text and detail, spacing the grid lines close together (choosing higher numbers of grid lines) can make this easier.
- 2) Next, add your text and numbers, saving your chart to disk often so that if you make a mistake you don't have to start again from scratch.
- 3) When you are ready to add the bars, you can do this with the rectangle icon.
- 4) To draw a solid color bar chart with a solid color border, see the next note.

Solid Color Polygons or Text with Solid Color Borders

Here's how to draw a solid color polygon or typestyle with a different color line border: first, make both the foreground and background colors of the hatch style icons the same color (the color you want inside the bar). Then, move the cursor into the bottom half of any hatch style icon and press the left button. Next, move the cursor into the top half of the solid color icon that you would like to use and again press the left button. Now as you draw your typestyle or bordered polygons they will fill automatically with the interior color and exterior line style and color that you selected.

"Shrinking" an Image

This is a sleight of hand that you can only perform if your graphics card has multiple modes or if you have more than one graphics card.

For example, if you draw an image on the Tecmar board in 320x200 4 color mode and store it in the Scissors icon library, you can retrieve it in the 640x400 16 color mode and your image will appear visually smaller. You can then cut and paste with these images to get a "windowing" effect. You can go from a low resolution mode to a high resolution mode with no loss of data, but no vice-versa. The colors will not be faithfully reproduced—there will be different colors in your picture but they won't be the same colors you drew your image in.

This takes 5 steps:

- 1) Install Dr. HALO in a low resolution mode.
- 2) Draw your image in this mode.
- 3) Store your image in the library for the scissors icon.
- 4) Re-install Dr. HALO in a high resolution mode.
- 5) Retrieve your image from storage in the scissors icon.

Updates

3-D Bar Charts

The rectangle icon has a pop-up menu option which draws 3-D bars for bar charts. To do this, choose the fourth icon from the pop-up menu. Then, draw the front “face” of the bar by sizing the boxed cursor with the right button and place it on the screen by pressing the left button. Then move the cursor to a new location, behind the “face,” and press the left button again. Dr. HALO draws a connecting fill from the second location to the first to create a 3-D bar. (These bars will be drawn in the currently selected color hatch pattern, line style and width.)

The Polaroid Palette

When you select the Polaroid Palette in the INSTALL program, you will be asked to select a film type, 1-5, these numbers correspond to the film types, 1-5, listed in the Polaroid Palette Manual. You will also have to choose port 1 or 2. If you are using a pointing device other than the keyboard, select port 2, since your pointing device will most likely be using port 1. The Polaroid Palette is designed to work only with the IBM graphics board.

When you are ready to take a picture of your screen, just select the printer icon. When you hear the “beep” remove the dark slide from the camera and hit the escape key to take the picture. When you hear another “beep,” you can remove your photo from the camera. If you have any other questions regarding the Polaroid Palette, consult its manual.

Glossary

In this manual we've made every effort to avoid technical terms, however, sometimes they are the best way to describe and differentiate between things. Below is a list of those few technical terms that we just could not avoid.

Cursor

This is the mark on the screen that shows you where you are. It moves across the screen simultaneously as you move any of the pointing devices that work with Dr. HALO.

Default Mode

Default is what you get when you do not make the choice of one thing over another. When you win by default it is because your opponent did not choose to play and you did not have a choice in the matter. Thus, the default mode of an icon is the one that you get if you don't make a choice. The default mode of an icon can take two forms. For most of the icons it will be the function associated with the icon pictured in the main menu. This icon will be repeated as the first choice in the pop-up up menu as well. For the font and airbrush icons however, the default mode will be the last combination of options that you had selected from the pop-up menu. Whenever you leave a pop-up menu without making a selection you'll automatically return to its default mode icon in the main menu.

Fat Bit Editing

This is when an area of the screen is magnified so that you can edit a drawing by its smallest components, pixels. (Pixels are defined below.)

Hatch Patterns or Hatch Styles

These are designs that can be used to paint your displays with. Dr. HALO provides you with several of these and you can also create your own using the Fat Bit icon pop-up menu.

Icons

These are the pictures displayed in the menus on your screen which indicate the functions of Dr. HALO.

Painting Mode

This is determined by whether the paintbrush is on or off. When the paintbrush is on you'll be able to paint continuously. When the paintbrush is off you can only paint one spot at a time.

Pixels

Pixel is an abbreviation of "picture element." These are the little dots of color that make up the pictures on a monitor. Each group of light phosphors that can be addressed, stored or displayed by the computer represents one pixel.

Rubberbanding

This term is used to describe the mode of the cursor which allows its proportions to be stretched and contracted.

Appendix

These are the command line options that you can include if you choose not to use the INSTALL program:

The DOS command for beginning Dr. HALO is:

DRHALO -DHALOcard.DEV -Pdevice,port+ -Mmode*
-(options)

— Capital letters are typed exactly as shown;
lowercase letters are substituted as follows:

card is a code for the graphics card you are using,
either:

IBM	SCIO (Scion)	AMDE (Amdek)
TECM (Tecmar)	NINE (Number 9)	ORCH (Orchid)
QUAD	HERC (Hercules)	CONO
(Quadscreen)		(Conographics)

mouse is a code for the input device you are using,
either:

- 1 Mouse Systems Mouse
- 2 Summa Graphics Mouse
- 3 Microsoft Mouse
- 4 Bit Pad One digitizer or equivalent
- 5 Keyboard
- 6 Koala Pad or Joystick

port is the communication port you are using, either 1
or 2 (for mice 3 and 5 this has no meaning, but must
be supplied anyway).

+ The —P has some advanced options, which provide
additional configuration information for joysticks,
koala pads and digitizers. You probably won't need to
use any of these unless you're technically oriented.
These are as follows:

—Pdevice,port,maxx,maxy,attribute,left,right where:

Device and port are listed as above.

maxx and maxy are the range of values for your pointing device. x=The width of your input device; y=the height. Digitizers allow you to set the number of points digitized, so to be able to use the whole screen you must set these correctly. These numbers are listed in the manual for your pointing device.

Here is an example:

Specify maxx and maxy for an 11" x 17" digitizer which outputs 100 points per inch.

$$\begin{aligned}\text{maxx} &= \text{width} \times \text{points per inch} \\ &= 17'' \times 100 \\ \text{maxx} &= 1700\end{aligned}$$
$$\begin{aligned}\text{maxy} &= \text{height} \times \text{points per inch} \\ &= 11'' \times 100 \\ \text{maxy} &= 1100\end{aligned}$$

attribute only has meaning when used with a joystick, koala pad, or any device using the IBM game port adapter. Normally, you should set this to -1 for default. Other settings are:

- 1 Averaged relative movement (this acts like a mouse, we do not recommend this setting)
- 2 Unaveraged absolute
- 3 Average absolute (this is the recommended value for game port devices and is also the default value specified by the options.

left, right are parameters for use with digitizers and are "masks" for the left and right button switches.

Digitizers with a stylus or any single button mouse use the following: Left parameter = 126; Right parameter = 256. Thus, the "ALT" key becomes your right button. (The single button on your device acts as the left button.)

For digitizers with multi-button crosshair cursors, left and right keys must be assigned to the crosshair buttons. This is done with a "binary mask." The right button is the "least significant" bit of the mask (1). Thus, continuing from right to left, the button values are: 1, 2, 4, 8, 16.

For example; A four button digitizer:

left value = 8, right value = 1

Setting the right value to 3 and the left value to 12 (3 = 1 and 2, 12 = 8 and 4) assigns both left buttons to act as "left" and both right buttons to act as "right."

For -P, you may specify either the first 2 parameters only, or all 7.

Example *1:

For an 8½" by 11", at 200 points per inch, digitizer with a stylus; The command line option would be:

DRHALO -P,1,1700,2200,-1,127,256

Example *2:

For an 11" by 17", at 200 points per inch, digitizer with a four button cursor; The command line option would be:

DRHALO -P4,1,2200,3400,-1,8,1

* mode is the initial graphics mode for those boards which support multiple modes.

Optional Commands:

- G** is a "shortcut" which enables you to skip the device indicator prompt and go directly into the program.
- S** is implemented for use with the SCION board (or the Tecmar board if you are not using the default mode). S, followed by a number, indicates the starting address of the board's memory block. (Refer to the SCION or Tecmar manuals for the correct addresses.)
- N** leaves intact the current display when you re-enter Dr. HALO. This safeguard protects you from accidentally losing an image that you haven't saved.
- H** is the code for your printer: 0=none, 1=Epson, 2=Prism, 3=Quadjet, 4=Act II, 5=Diablo and 6=Polaroid Palette.
- Xn** indicates the size of the crosshair cursor
- A** allows the image to remain on the screen after exiting from Dr. HALO. This applies primarily to the Texas Instruments and Conograhics boards. You should not do this on a single monitor system (or single plane; the TI works O.K.) since the board will stay in text mode.

Creating the Configuration File from DOS:

To avoid retyping command line information, any or all of the options listed above can be placed, with one option per line, in the file HALO.CNF.* Here is an example of how to create a configuration file for mode 6 of the Tecmar board, using the Mouse Systems mouse on port 1. Type exactly as written inserting a carriage return after each line:

```
TYPE CON:  HALO.CNF
—DHALOTECM.DEV
—M6
—P1,1
—F6 (the function key)
```

* NOTE: If any options appear in both the command line and HALO.CNF, the command line takes precedence.

